

## **Proposed Airborne Toxic Control Measure to Reduce Diesel Particulate Matter Emissions from Stationary Diesel-Fueled Compression Ignition Engines**



August 26, 2003



California Environmental Protection Agency

Air Resources Board

## **Airborne Toxic Control Measure (ATCM) Development Process**

- **Held Public Workshops**
  - ◆ February 2001 - Discussed Risk Reduction Plan
  - ◆ January 2002 - Presented regulatory concepts
  - ◆ April 2002, September 2002, November 2002, March 2003, June 2003, August 2003 - Presented proposed draft regulatory language
- **Coordination with CAPCOA Working Group**
- **Ongoing consideration of verbal and written comments**
- **Control Equipment Demonstration**
- **Test Method Workgroup**

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## **Basic Control Approach to Developing ATCM**

- **Establish diesel PM emission standards that are based on the use of best available diesel PM control technologies and lowest-emitting diesel-fueled CI engines**
- **Consider contribution to overall ambient PM and risk levels, potential near source risk, and the cost of controls when establishing emission standards**

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### **Changes**

- **Combined < 50 hp and  $\geq$  50 hp ATCMs into one**
- **Definitions**
  - ◆ **“Emergency Use”**
- **Exemptions**
  - ◆ **In-use engines with SCR**
- **Emergency Standby Engines**
  - ◆ **In-use direct-drive fire pump complying with NFPA 25 not subject to additional maintenance and testing operation constraints**
  - ◆ **ISC contracts (still evaluating approach)**
  - ◆ **Diesel PM limits and Hour Limitations**
    - ◆ Allowable hours for maintenance and testing decreased
    - ◆ District has authority to allow more hours within limits defined by ATCM

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## **Changes (continued)**

### **■ Prime Engines**

- ◆ **New option for uncertified in-use prime engines:**
  - ✦ 30% reduction in diesel PM by 2006
  - ✦ Replacement with Tier 4 by 2011-2013

### **■ Compliance Dates**

- ◆ **Compliance by January 1, 2006 for in-use emergency standby engines that comply by solely reducing or maintaining their hours of operation**

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## **Scope of ATCM**

### **■ ATCM will address**

- ◆ **New engines less than or equal to 50 hp**
  - ✦ Prime, Emergency Standby, Agricultural
- ◆ **New and In-Use Engines greater than 50 hp**
  - ✦ New: Prime, Emergency Standby, Agricultural
  - ✦ In-Use: Prime and Emergency Standby

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**Summary of Proposed Requirements  
New Diesel-Fueled CI Engines ≤ 50 hp  
Both Prime and E/S Applications**

DIESEL PM LIMITS (g/bhp-hr)	NMHC/ NOX/CO LIMITS (g/bhp-hr)	MAXIMUM ALLOWABLE ANNUAL HOURS OF OPERATION FOR ENGINES MEETING DIESEL PM LIMIT	COMPLIANCE DATES
Off-road Standard	Off-road Standard	Not Limited by ATCM	January 1, 2005

- “Seller” requirement (limits and reporting)
- Includes new agricultural engines

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**Summary of Proposed Requirements  
New Diesel-Fueled CI Engines > 50 hp  
Prime Applications**

DIESEL PM LIMITS (g/bhp-hr)	NMHC/ NOX/CO LIMITS (g/bhp-hr)	MAXIMUM ALLOWABLE ANNUAL HOURS OF OPERATION FOR ENGINES MEETING DIESEL PM LIMIT	COMPLIANCE DATES
Non-Agricultural Applications ≤0.01  Agricultural Applications ≤0.15	Off-road Standard (Appropriate or Tier 1)	Not Limited by ATCM	January 1, 2005

- Dual-fueled diesel-pilot digester/landfill gas exempt

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### Summary of Proposed Requirements In-Use Diesel-Fueled CI Engines > 50 hp Prime Applications

DIESEL PM LIMITS (g/bhp-hr)		NMHC/NOx/ CO LIMITS (g/bhp-hr)	MAXIMUM ALLOWABLE ANNUAL HOURS OF OPERATION FOR ENGINES MEETING DIESEL PM LIMIT	COMPLIANCE DATES BY MODEL YEAR OF ENGINE	
Applicability	Limit			OWNS 3 OR LESS ENGINES	OWNS 4 OR MORE ENGINES
All Engines	85% reduction from baseline levels (Option 1)  or  0.01 g/bhp-hr (Option 2)	If control strategy is not Verified retrofit technology, show no increase from baseline levels	Not Limited by ATCM	<u>Pre-89 thru</u> 89 1/1/2006  <u>90 to 96</u> 1/1/2007 96 thru POST- 96 1/1/2008	<u>Pre-89 thru 89</u> 25% 1/1/06 50% 1/1/07 75% 1/1/08 100% 1/1/09  90 to 96 30% 1/1/07 60% 1/1/08 100% 1/1/09  96 thru POST- 96 50% 1/1/08 100% 1/1/09
Uncertified Engines	30% from baseline and Replace with Tier IV when available (Option 3)			<u>All Model Years</u> - 30% reduction from baseline levels by January 1, 2006 - Replace with Tier 4 by earliest applicable Tier 4 phase-in date (2011-2013)	

- Dual-fueled diesel-pilot exempt
- In-use agricultural engines exempt

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### Summary of Current Requirements New Diesel-Fueled CI Engines > 50 hp Emergency Standby Applications

DIESEL PM LIMITS (g/bhp-hr)	NMHC/ NOXCO LIMITS (g/bhp-hr)	MAXIMUM ALLOWABLE ANNUAL HOURS OF OPERATION FOR ENGINES MEETING DIESEL PM LIMIT			COMPLIANCE DATES
		Emergency Use	Non-Emergency Use		
			Emission Testing to show compliance	Maintenance and Testing (hrs/yr)	
≤0.15	Off-road Standard (Appropriate or Tier 1)	Not Limited by ATCM	Not Limited by ATCM	50	January 1 2005
≤0.01 (District Discretion)		Not Limited by ATCM	Not Limited by ATCM	Up to 100	

- Dual-fueled diesel-pilot digester/landfill gas exempt
- Staff currently evaluating ISC engine policy
- New E/S agricultural engines meet ≤0.15 (no hour limits)

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**Summary of Current Requirements**  
**In-Use Diesel-Fueled CI Engines > 50 hp**  
**Emergency Standby Applications**

DIESEL PM LIMITS (g/bhp-hr)	NMHC/ NOX/CO LIMITS (g/bhp-hr)	MAXIMUM ALLOWABLE ANNUAL HOURS OF OPERATION FOR ENGINES MEETING DIESEL PM LIMIT			COMPLIANCE DATES BY MODEL YEAR OF ENGINE (ILC by January 1, 2005)	
		Emergency Use	Non-Emergency Use		OWN 3 OR LESS ENGINES	OWN 4 OR MORE ENGINES
			Emission Testing to show compliance	Maintenance and Testing Use (hrs/yr)		
Not limited by ATCM	If control strategy is not Verified retrofit technology, show no increase from baseline levels	Not Limited by ATCM	Not Limited by ATCM	20	PRE-89 THRU 89 1/1/2006	PRE-89 THRU 89 25% 1/1/2006 50% 1/1/2007 75% 1/1/2008 100% 1/1/2009
≤0.40		Not Limited by ATCM	Not Limited by ATCM	30	90 TO 96 1/1/2007	90 TO 96 30% 1/1/2007 60% 1/1/2008 100% 1/1/2009
<0.15 (District Discretion)		Not Limited by ATCM	Not Limited by ATCM	Up to 50	96 THRU POST-96 1/1/2008	96 THRU POST-96 50% 1/1/2008 100% 1/1/2009
≤0.01 (District Discretion)		Not Limited by ATCM	Not Limited by ATCM	Up to 100		

- Dual-fueled diesel-pilot engines exempt
- In-use agricultural engines exempt

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**Summary of Current Requirements**  
**In-Use Diesel-Fueled CI Engines > 50 hp**  
**Agricultural Applications**

- No emission limits or hour of operation restrictions at this time
  - ◆ Installation and availability of control equipment issues
- Working with the Agricultural Working Group on voluntary approaches
- Will evaluate the viability of electrification
- If retrofit technology becomes available, we will propose amendment to ATCM

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## **Other Requirements**

- Initial Reporting Requirements
- Control Strategy Reporting Requirements
- Demonstration of Compliance
- Notification of Non-Compliance
- Monitoring Equipment
  - ◆ Hour meters
  - ◆ Back pressure monitors

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## **Next Steps**

- Begin formal regulatory process - September 26, 2003
- Possible additional workshop Sept-Oct.
- ARB Public Hearing November 13-14, 2003

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